THE
VETERINARY JOURNAL

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JULY, 1920.

THE NEWLY-ELECTED PRESIDENT.

PROFESSOR BRADLEY is too well known in the profession to need any introduction to its members, and his selection for the Presidential chair is a popular one.

A Lancashire man by birth, his distinguished scientific career commenced with his graduation as a Member of the Royal College of Veterinary Surgeons in 1892, his *Alma Mater* being the New Veterinary College, Edinburgh. Appointed to the teaching staff, he held the position of Professor of Anatomy until 1900, in which year he transferred to the Chair of Anatomy in the Royal (Dick) College, when this chair was vacated by the late Professor Mettam. In 1911 the Governors of the Dick College appointed Professor Bradley to be Principal, and it has been under his guidance that the present College Buildings have been built. Elected a Member of Council in 1911, and Vice-President in the years 1912 and 1919, his selection as President has come at a time when the affairs of the Royal College of Veterinary Surgeons, especially financially and educationally, are assuming a serious aspect. His personal knowledge of medical and scientific examinations will be of the greatest value to pilot the ship into a safe harbour, as Dr. Bradley holds the M.D. and D.Sc. of Edinburgh University, and the Fellowship of the Royal Society of Edinburgh, upon whose Council he has several times been elected.

Editorials.

A NEW MILK BILL.

A BILL to amend the Milk and Dairies (Consolidation) Act, 1915, is now before Parliament. It is of great interest to veterinarians and a step forward in the effort to secure for the nation a supply of clean milk. One of the chief defects of previous milk regulations has been that milk could be produced in sheds and shippons, structurally quite unfit for the obtaining of clean milk. It is true that recommendations have been made as to structure of floors, length and width of stalls, height of the buildings, plan of gutter and drains, etc., but too often these regulations have been more honoured in the breach than the observance. In not a few cases landlords have refused to carry out the necessary alterations, and tenants have not seen their way to do them. An improvement in this respect may take place under the present Bill, for the local authority will have the power, if it becomes an Act, of granting, renewing, suspending and revoking licenses of dairies and dairymen.

The Minister of Health may make it a condition of " the appointment or employment of a veterinary inspector that he shall not engage in private practice." It looks also as if two or more sanitary authorities will be able to combine and appoint a veterinary surgeon to supervise the supply and perhaps the distribution of milk in their areas.

As regards tuberculosis, local authorities may authorise or require any dairyman " to carry out such tests for tuberculosis or other diseases as may be required by the Order." We think that this clause might be better drafted. It does not say that the tuberculin test must be carried out by a qualified veterinary surgeon. There are many wise men who think that the whole operations of the production and distribution of milk should be under veterinary supervision, and it is certain that our profession should take a large part in the matter.

The grading of milk will probably become an accomplished fact when the Bill becomes law, and those who want clean milk will doubtless have to give a higher price for it than those who care not about bacterial and manurial contamination. This, in our opinion, is only just.

The effort to make milk pure at the beginning is worthy of all support, and has far more to recommend it, and is far more rational than dabbling with the removal of impurities by scientific methods from its origin and away down its bandying about from the cow's teat to the human mouth. There is much in the Bill worthy of earnest perusal by the members of our profession, and therefore we reprint its full text in this issue.

SCIENTIFIC ESTIMATES OF FOOD STUFF VALUE.

We reproduce in this month's issue a paper on the economical value of feeding stuffs, which will be of great interest not only to the third-year student in his hygiene course, but also to the practitioner, whom it will furnish with much valuable information to impart to his farmer clients. The paper is an essentially common-sense and practical one, and is written in plain, simple language which will appeal to everyone. Its keynotes throughout are efficiency and economy, and it particularly demonstrates that the scientific farmer who reasons things out and takes the trouble to make his own compounds of meals and mixtures for young stock not only saves considerably in the quality of the stuff, but in the cost of the product. The methods of feeding animals varies very much in different districts, and too much knowledge on this important subject cannot be placed before the student of veterinary hygiene and dietetics.

THE REORGANISED AMERICAN ARMY VETERINARY CORPS.

The American Army Veterinary Corps is still to remain on a permanent footing and consist of a portion of the Medical Department. It is intended that it shall have 140 officers, in rank ranging from colonel to second-lieutenant, but our professional colleagues consider that, as the standing army is to consist of 299,000 enlisted men and about 17,700 officers, it will be necessary to provide a minimum of 200 veterinary officers and at least 2,000 men to efficiently cope with the duties of an efficient veterinary service.

Original Communications.

GORSE AS FOOD FOR FARM ANIMALS.

By J. J. GRIFFITH, B.Sc.,
Lecturer and Adviser in Agricultural Chemistry, University College of Wales, Aberystwyth.

In many parts of Wales gorse chaff was at one time extensively used as fodder for both horses and cattle. There are several isolated districts where the practice is still maintained, although to a much less extent than was the case five or ten years ago. Inquiries received from a number of farmers regarding its nutritive value suggested the advisability of ascertaining the composition of typical examples of the gorse that is used for feeding in various districts.

There seems to be considerable variation of opinion among farmers as to the relative merits of the different kinds of gorse. For example,

some farmers maintain that gorse of one, two, or at most a few years' growth cut down to the level of the ground is the only kind that is worth utilising. On the other hand there are equally well experienced farmers who are of opinion that the branches of large gorse bushes are at least as good and may be superior in value. Again, there appears to be some difference of opinion as regards the relative values of gorse which has been artificially sown and that which has sprung up upon the land in a natural way.

Further, whilst the type of gorse which flowers in the spring (*Ulex europæus*) meets with general approval, one does not find anything like a consensus of opinion as regards the feeding value of the gorse that flowers in the autumn (*Ulex Gallii*).

In selecting samples for analysis an attempt was made to take into consideration all circumstances which might influence the composition of the gorse used in different districts.

Table I. shows the composition of twelve samples of the spring flowering gorse. The variation in the percentage of water is to be attributed mainly to the inequality of the intervals between the times of sampling and the times of analysis of the different samples, *i.e.*, to variation in the amount of desiccation previous to analysis.

Particulars concerning the samples.

No. 1. Branches from gorse bushes in Cardiganshire.
„ 2. Do. Do. Do.
„ 3. Sown gorse, one year's growth, from Pembrokeshire.
„ 4. Do. Do. Do.
„ 5. Sown gorse, two years' growth, from Carnarvonshire.
„ 6. „ one year's „ „
„ 7. Natural gorse from Cardiganshire.
„ 8. „ „ Pembrokeshire.
„ 9. „ „ Carmarthenshire.
„ 10. „ „ Pembrokeshire.
„ 11. Sample from Carmarthenshire.
„ 12. „ „ Merionethshire.

The figures given in Table I. show that, after making allowance for the variation in the moisture content, the samples analysed are fairly uniform in composition. The carbohydrate and fibre are the constituents which fluctuate most. The amount of indigestible fibre present is very much increased and the percentage of soluble carbohydrates is proportionately lowered as the gorse advances in age (see No. 5). Hence to secure the maximum nutritive value it is

TABLE I.

No. of Sample.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	Average.
Water	63.55	59.04	41.44	58,10	40.11	40.17	44.21	41.06	45.80	46.13	38.77	60.21	**48·23**
Albuminoids .. .. (Crude Protein)	5.62	4.75	6.24	5.69	6.31	7.00	6.19	6.87	5.94	6.69	7.56	4.81	**6·14**
Oil .. .. .. (Crude Fat)	1.44	1.03	1.95	1.21	1.56	2.18	1.89	1.99	1.80	1.99	2.10	1.55	**1·72**
Carbohydrate	13.18	17.43	22.19	16.49	18.56	24.21	22.30	19.98	20.16	23.67	23.68	18.07	**19·08**
Fibre	14.75	16.59	25.96	16.80	31.12	24.03	23.25	27.74	24.33	19.28	25.42	13.76	**21·92**
Ash	1.46	1.16	2.22	1.71	2.34	2.41	2.16	2.36	1.97	2.24	2.47	1.60	**2·01**
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	**100·00**

advisable to cut the gorse at as early a stage of growth as is practicable. This is of particular importance if the gorse is to be supplied to working horses, because when horses are performing hard work it is not advisable or economical to include a large amount of indigestible matter in their daily ration.

Samples 1 and 2 may be taken as representative of branches cut from gorse bushes. Provided such branches are comparatively young, and are green and fairly succulent throughout, their nutritive value seems to be about the same as that of an ordinary gorse crop.

On comparing the results obtained with samples of natural and of sown or cultivated gorse we find that they do not present any very marked contrast in chemical composition. Assuming, therefore, that in age and other circumstances the natural and sown gorse are similar they are not likely to differ much in their nutritive value.

The most convenient means of illustrating the significance of the figures given in Table I. as regards the feeding value of gorse is to compare the average composition as given in the last column with the percentage composition of hay and straw. Since, however, the amount of water present in gorse is much greater than in hay and straw, the comparison may be simplified by giving the percentage composition of the *dry matter* in each food.

Table II., shows the percentage composition of the dry matter of gorse, meadow hay and oat straw.

TABLE II.

	Gorse.	Meadow Hay.	Oat Straw.
Albuminoids .. .. .. (Crude Protein)	12	11¼	4¾
Oil (Crude Fat)	3¼	2¾	2¼
Carbohydrate	38½	50	43½
Fibre	42¼	29	42½
Ash	4	7	7
	100	100	100

Table II. indicates that, when estimated on the basis of the composition of the dry matter, the nutritive value of gorse is lower than that of meadow hay, but is considerably higher than that of oat straw. It is true that the average sample of gorse contains more indigestible fibre and a smaller amount of carbohydrate than oat

straw. But, on the other hand, it contains a high percentage of albuminoids, and this is a particularly desirable feature of its chemical composition, because albuminoids (protein) are in many respects the most important constituents of food.

Table III. shows the results obtained in the analysis of three samples of autumn flowering gorse. In each case the sample was taken from the green succulent branches of gorse bushes.

TABLE III.

No. of Sample.	13.	14.	15.
Water	42·89	39·67	50·12
Crude Protein..	5·52	6·24	5·24
Crude Fat	2·00	1·82	1·51
Soluble Carbohydrate ..	20·76	25·69	18·39
Fibre	26·48	24·11	23·12
Ash	2·35	2·47	1·62
	100·00	100·00	100·00

The number of samples dealt with was too small to enable one to draw any very definite conclusions regarding the relative feeding values of the europæus and Gallii varieties. At the same time it is evident that the two varieties are approximately of the same chemical composition and therefore probably of similar nutritive value.

General Conclusions :—

The results of the analyses clearly indicate that the feeding value of gorse is very considerable. Therefore, farmers who have been accustomed to utilise it as food for horses and cattle would do well to continue the practice. It is possible also that under certain circumstances its use might be extended with advantage. In Wales there is a very considerable area of land on the steep slopes of the hills which provides but very little food when grazed. The cost of keeping such land under cultivation is often prohibitive. But if it were put down to gorse it might produce several tons per acre annually of useful fodder, for it is on land where the soil is shallow and stony that the best crops of gorse are often obtained.

In many localities gorse is the chief natural product of land commonly regarded as waste. Consequently, even in districts where gorse is not cultivated, considerable use might be made of natural gorse, especially in seasons of scarcity of winter fodder. Shortage of hay, straw or roots might in this way be remedied without the necessity

of incurring any additional expenditure on purchased feeding stuffs. This is obviously a matter of great economic importance when the market prices of cakes and meals are abnormally high, as is the case at present.

In the light of the analytical results obtained, together with the experience of many farmers, the advantages of gorse as food for stock may be briefly summarised as follows :—

(1). Heavy crops of gorse may be raised on poor thin stony soils upon which little else may be grown, and on steep slopes where continual cultivation would not be remunerative.

(2). It is particularly useful as winter fodder when, as the result of the dryness of the previous summer, the supplies of hay and of cereal straw are short.

(3). Being comparatively rich in albuminoids, it serves to raise the albuminoid ratio of a diet which includes a fair amount of cereal straw.

(4). As a green succulent food it may be a particularly desirable constituent of a ration when the supply of turnips is comparatively small.

(5). Under several circumstances the use of gorse may be recommended to supplement other home grown foods in order to economise the use of purchased feeding stuffs.

(6). Experience shows that it gives very good results when supplied to milk cows. This is true both as regards the yield of milk and the quality of the produce. It has been observed to be very beneficial in its effects upon the general quality and particularly the colour of butter.

Clinical Cases.

COMPLETE PROLAPSE OF THE UTERUS IN A BITCH. AMPUTATION AND RECOVERY.

By FREDERICK HOBDAY, F.R.C.V.S., and H. J. R. POPE, M.R.C.V.S., *London.*

The patient was a mongrel terrier bitch, about four years old, which had never had puppies. Was brought by the owner on account of a protrusion from the vagina, which had existed for several days, and was now becoming soiled and offensive. It was clear, upon examination, that this consisted of the two horns of the uterus, which were fully two-thirds everted. Except for the local inconvenience the animal showed no constitutional disturbance, eating food and drinking as usual.

Amputation was decided upon, and this was done under anæsthetic and by the aid of a ligature. The ligature came away on the fourth day and recovery was quite uneventful.

A LARGE UTERINE FIBROID REMOVED PER VAGINAM.

By FREDERICK HOBDAY, F.R.C.V.S., and H. J. R. POPE, M.R.C.V.S.,
London.

This case is of unusual interest, partly because of the size and situation of the tumour, and partly because of its possibility of removal without opening the abdominal cavity.

The patient, a toy Pomeranian bitch, weighing about 6 lbs., five and a half years old, which had never had puppies, was brought to Mr. Pope on account of a swelling in the vagina, which was perceptibly growing, and was now the size of an ordinary walnut and visible through the vaginal orifice as a hard, white, shiny lump. It was beginning to cause inconvenience during urination, and occasionally a fœtid, purulent discharge took place. Digital examination revealed the fibromatous nature of the tumour, and clearly differentiated between this and an ordinary prolapse.

The diagnosis was clearly confirmed that it was a uterine fibroid involving the posterior part of the body of the uterus, and as it was too large to pass through the labiæ of the vulva of so small a patient, it was decided to incise the perinæum and to reach it from here. Under chloroform and all antiseptic precautions this was done, and after careful dissection and the subsequent use of a ligature, the whole of the fibroma was removed. The perineal wound was sutured and healed by primary union. The ends of the ligature were left protruding from the labiæ of the vagina, and this was removed on the third day.

Further progress was uneventful and the bitch made a complete recovery.

PARAPHIMOSIS IN A YORKSHIRE TERRIER AND HARD SUBSTANCE IN A FOX TERRIER.

By G. MAYALL, M.R.C.V.S.,
Bolton.

I.—A Yorkshire terrier, 18 months old, was brought to me on July 3 with his glans protruded half an inch and the prepuce tightened behind it. The glans was as big as a walnut in size, ingorged with blood, and of a pinkish hue. After lessening the size of it by placing swabs soaked in adrenalin and afterwards alum solution around it, manipulating it with the thumb and forefingers and afterwards pulling the sheath up over it rather than pressing it much down into the

sheath, I was able to return it and push it well home into the sheath by catching hold of the extremity of the prepuce and sliding it back inside. It took me about 20 minutes to complete the operation of reposition. I gave the dog a teaspoonful of liquid paraffin and sent a dose or two home with him.

There is little written in canine literature about the cause of paraphimosis. In this case the owner assured me that the dog had been kept in the house always and never been near a bitch. There appeared to be no paralysis of the penis, and I can only conclude that the dog had had an artificial erection which had resulted in the paraphimosis. There was no traumatism and no tumour of any kind present.

II.—A fox terrier dog rejoicing in the name of " Der Teufel " was brought to me on June 30 with a pronounced swelling below the right orbit and an infra-orbital fistula discharging dirty pus. I cleansed the region with antiseptic, and on manipulation found a movable hard substance the size of a pea beneath the skin. I cut down on to it and removed it, and it weighed six grains. The growth was well surrounded with soft tissues, and to get it out I had to use a tooth forceps. It communicated with the root of the first molar, and was evidently growing, as there were several free particles besides the pea-like structure that I removed. The dog has gone on well since, and the owner assured me that the fistula had been present for about three weeks before I operated. The substance may be an exostosis or an odontoma.

A MONOPHTHALMIC MONSTROSITY.

By MAX HENRY, B.V.Sc., M.R.C.V.S.,
Sydney, New South Wales.

THE subject of this note was a pure Merino lamb born recently on the Government Experiment Farm at Tranjie, N.S.W., and submitted for examination by the sheep overseer, Mr. Lindon. The lamb was born fully developed almost a month over time, and the head was markedly abnormal. The dimensions of what would in ordinary animals have been the face and top of the head were about $4\frac{1}{2}$ by 3 inches. The ears were normal, and midway between them and on a little higher level was placed the single eye, which was at birth apparently normal. The lower part of the face works apparently on a joint representing the maxillary articulation. The line of cleavage ran through the middle of the eye. At the bottom of the face there was an opening representing the mouth, and showing inside a normal palate formation. Hanging over this opening there was a small triangular pro-

boscis. On examining the under-surface, a rudimentary tongue was seen towards the anterior extremity, but was not in any way connected with the mouth. The whole head was covered with very hair-like wool.

AN INTERESTING KIDNEY CALCULUS IN A SHEEP.

By REGINALD W. HALL, M.R.C.V.S.,
Barry.

THE presence of calculi in the kidneys of the sheep has not been observed very frequently and is therefore worth recording when met with. The specimen met with was taken from the left side of a fat three-year-old cross-bred Down ewe.

The structure of the kidney had completely disappeared, leaving only hard calcareous material, surrounded by remnants of the capsule.

The usual quantity of fat which generally surrounds a kidney was absent, and I could not discover any trace of the ureter.

The ewe was brought in to the abattoir, without any special history, amongst a bunch of others, and the abnormality was discovered whilst inspecting the meat.

The right kidney was enlarged, but, upon section, its structure appeared normal.

PERITONITIS IN YOUNG CATTLE.

By R. HUDSON, F.R.C.V.S.,
Retford.

DURING the spring and early summer, the country practitioner is frequently called upon to treat young cattle which are said to have " gone off " in condition since they were turned out to grass, and if winter keeping has been scarce, necessitating the turning out of cattle early, or the frosts late in the season, he will have more cases to advise upon.

When visiting a farm one day in May, I saw about twenty six-months' old calves turned out to grass and remarked to the owner that they were a splendid lot. A month later he came to me and asked me to go and see them. Two were dead and the remainder were wrecks of their former selves.

Two frosty nights soon after they were first allowed to remain out brought about the trouble in this case.

The majority of them looked very thin and empty ; hair erect, losing its natural red colour, and taking on a yellowish tint ; skin light, nose dry and dirty ; grunting, eyes sunken and gouled ; inside of ears

yellow and covered with greasy scaly deposit ; some scouring, others constipated, the fæces being partly covered with blood and mucous. They were feeding badly ; rumination was suspended ; they laid a lot and were not easily induced to rise. Temperature 102–103° ; pulse 60° ; thin and wiry. Post-mortem examination showed peritonitis and some enteritis.

The peritoneal cavity contained about a quart to two quarts of straw-coloured fluid. On the outside of the stomachs, particularly along the grooves between them, more patches of peritonitis and the peritoneal covering of the intestines also showed peritonitis along various lengths.

The inflammation did not always extend through the wall of the intestines, but here and there inflammation of the mucous membrane was found to exist.

The liver and kidneys were enlarged and the urine high in colour. Death appeared to be due to exhaustion, following the absorption of toxines, diarrhœa and pain.

Treating such cases almost amounts to what the owner described as " rearing them over again." They must be taken up and housed in a warm, well-bedded yard. If there are many, it is better to divide them up, putting the worst together. They should be encouraged to drink gruels of linseed and oatmeal, allowed to get cold before offering. If refused, oatmeal or bran stirred up in cold water and allowed to soak, may be tried. Sick animals often refuse boiled or scalded gruels when they will take them made with cold water, scalded bran, oatmeal, and hay chaf, linseed cake and any easily digested food, such as green clover or grass, though I do not think green food as good as scalded food, owing to its tendency to ferment and aggravate any diarrhœa which may be present.

Bad cases should be rugged down, and if heifers, a soft sack may be stitched right round the body.

Purgatives should be avoided, the bowels, if necessary, being assisted by injections. Ammon. carb., Pot. nit., soda bi-carb., are most useful, aided by nux-vomica in the later stages. In bad cases of diarrhœa, chlorodyne may be given, but with the checking of diarrhœa, what little tendency to feed there is, is often suppressed altogether.

If well nursed, many cases recover. If left out many waste away to skin and bone, having become chronic scourers, becoming invaded by parasitic worms, owing to their weakened vitality.

Although mostly met with in young stock, older cattle, particularly cows in milk, may be affected. As a rule they show more tendency

to grunt and the symptoms may be mistaken for those of stomach obstruction.

It is a great mistake to turn young stock out at night too early in the year, and any not doing satisfactorily should be brought up and helped by good bedding, food and protection at night.

PERICARDITIS IN LAMBS.

By J. MALCOLM ARMFIELD, M.R.C.V.S.

An outbreak, causing alarming mortality in lambs in Wiltshire, came under my notice in the early summer of this year. It may be worthy of report, as several authorities of long experience could furnish little information, except that they had occasionally come across a similar condition, and text-books hardly mention it.

The subjects attacked were lambs about half-grown, in good condition, and not noticably ailing uutil 3–4 hours before death, when slight purgation was observed. They were hurdled on tares, and were also given a small ration consisting of aniseed cake, undecorticated cotton cake, maize and locust beans (not the best diet for lambs, one would think !).

About 20 deaths occurred in a fortnight in a flock of over 300, and then fatalities ceased, to the relief of all concerned. Examination of carcases revealed little else but jelly-like substance in the perecardial sac, and moderately extensive gastro-enteritis.

In one animal I opened I found a good many (about 200) specimens of the *trichocephalus affinis* worm. It would be interesting to know the exact cause of the condition, and what precautionary methods should be practised.

TWO ILLUSTRATIONS OF THE VALUE OF B.I.P.P. AS A WOUND DRESSING.

By FREDERICK HOBDAY, F.R.C.V.S.,
London.

Bismuth iodoform paste has been strongly recommended on many occasions as a wound dressing, but has not yet received the attention it deserves in veterinary practice. Used with discretion in deep and serious wounds, it is a most valuable application, and if it can be made to penetrate the depths of a burrowing sinus, it will, in a high proportion of cases, effect a cure without the drastic use of the knife. It is easy of application, and has the advantage that when once it has been thoroughly applied it does not need to be renewed for several days, so that any little disadvantage it may have

on grounds of expense is compensated for by the time and trouble saved in dressings.

Amongst many cases of its utility I recollect two in particular which were typically illustrative.

One was a pack pony engaged on active service in Italy on the Asiago plateau, when a shell burst overhead, killing one animal and wounding twelve others. This particular pony received a piece of shrapnel directly downwards into the fleshy portion of the haunch, causing a narrow wound in which a probe could be passed to a depth of nine inches. The piece of shell could not be felt. Our common experience of these was that these cases invariably suppurated extensively, and that eventually the animal had to be killed. In this instance the wound was filled up with B.I.P.P. within an hour after infliction, and the pony was sent down to hospital. This was the only dressing done. I saw the animal nine days afterwards when there was no suppuration whatever, and the wound was only three inches deep. The piece of shell had now worked upwards within reach of a long pair of forceps, and was extracted. A fresh amount of B.I.P.P. was inserted, and recovery was uneventful. The second case was that of a wire-haired terrier dog with a vertical sinus some two inches deep just behind the left elbow. I wanted to lance it in the lower portion, but the owner was very much averse to the use of the knife, and in this instance the interior was dried out with cotton wool and then smeared over with B.I.P.P. every third day. Four dressings were used, and recovery was uneventful.

A word of warning must, however, be issued against using it too freely on wounds of the dog and cat, as each of these species of animal are susceptible to iodoform poisoning from absorption. At the slightest sign of loss of appetite or dullness, the dressing must be stopped, and the part thoroughly cleansed, another dressing being applied.

Abstracts.

CERVICITIS OR INFLAMMATION OF THE OS UTERI IN CATTLE.

By J. F. DE VINE, D.V.S.

THIS is a pathological condition which unfortunately has not received sufficient attention to make our knowledge as accurate as its seeming importance warrants. Until comparatively recently most of the accepted theories as to the part cervicitis played in sterility have been quite erroneous; in fact, those who posed as being authorities

on animal industry practically ignored any pathological condition of the female genital organs other than atresia of the cervix, as having much to do with the problem of sterility, and this was equally true of our older text-books on veterinary obstetrics. Where animals failed to breed, the potency of the male was questioned, or the simple (?) process of "opening" the female at time of service was recommended. This accepted teaching has been harmful; aside from having no merit in most cases it not infrequently occasioned injury and infection of the cervix by crude manipulation, and also diverted attention from the real cause. Later this practice gave way somewhat to douching the vagina with an anti-acid, just before breeding. There is a possibility of this having some virtue. It is probably based on experiments that have been carried on in the human family in investigating sterility in some cases where it was found that the spermatozooa of certain males deposited in the vagina of certain females and coming in contact with the vaginal secretions perished either at once or in a short time, the resultant theory being that the secretions were too acid. However, this is not an entirely satisfactory explanation, as it was found that spermatozooa of another male when deposited in the vagina that was supposed to be excessively acid did not perish but lived several days in contact with the vaginal secretions. This theory was further complicated by the fact that the spermatozooa of the first male might remain active in contact with the vaginal secretions of another female, indicating a selective action rather than excessive acidity. This, of course, may explain why one animal may not conceive from any of several services of one male and conceive at once when served by another male. However, such a coincidence is not proof that the ovarian activity or the physiological condition of the cervix, uterus and tubes were not the determining factors, and that the last service occurred at just the proper time. However, douching with a slightly alkaline solution before breeding still seems to be an excusable custom, when all organs appear normal so far as can be determined.

From clinical experience, it is my opinion that cervicitis is one of the fairly common abnormal conditions of the female genitalia, particularly in bovines, accompanying and complicating in varying degrees of severity, practically every case of endometritis, metritis or retained placenta, not infrequently becoming chronic and causing sterility, or in the case of the pregnant animal, giving rise to a condition that may occasion the death of either the mother, the fetus, or both.

Notwithstanding this admission of the importance of cervicitis, I still believe it well to confine its discussion entirely to such informa-

tion as seems reasonably reliable rather than to consider plausible theories, since the latter might lead to errors rather than to the enhancement of our present knowledge.

If we compare the gross anatomy of the cervix of the mare and the cow it will be apparent at once that nature for some reason ordained a decided difference in the make-up of these two organs. In the mare we have a short, pliable cervix continuing anteriorally with the uterine body and posteriorly projecting into the vagina from one-and-a-half to two-and-a-half inches, normally, during the period when the internal genitals are in a state that might be styled dormant. During the period of estrum, not infrequently in the mare the cervix is completely obliterated, so to speak, and if one should make a manual examination at such a time the opening in the uterus would be found so dilated that the hand could be passed readily in, nothing but a fringe around the opening outlining the cervix. A somewhat similar condition also exists in some cases of chronic cervicitis in the cow. In what might be styled the ideally physiological condition of the cervix of the mare at the time of estrum, we find it soft, dilatable, and sufficiently dilated to admit one or two fingers readily through its opening. In this condition it is assumed that the glans penis of the male often grasps the external cervix and deposits the semen directly to the uterus.

As evidence of the apparent physiological advantage of a cervix of this character, experience has taught us that everything being equal, mares with such cervices conceive more readily and more regularly than those having widely dilated, constricted or indurated cervices. However, it is a debatable question whether or not this ideal cervix is not somewhat of an indicator of the physiological condition of the other internal genital organs, which in turn play a greater part in conception than the cervix itself. Let this be as it may it destroys the theories of the past, that "opening" the cervix is of any importance except in the rarest of cases, in the problem of relieving sterility, and this is as applicable to the mare as to the cow.

The vast difference in the conformation of the cervices of the mare and cow is at once apparent in the greater size and rigidity of the cervix of the cow. While the muscular walls of both are arranged in longitudinal and circular muscular fibres so as to contract or dilate at such times as nature intended, still the mare's cervix is short and so flexible that it can be readily dilated at almost any time; while in the cow the circular muscular fibres arrange themselves in rings so that a cervix may measure from three to five inches in length and the tissue be so dense and contracted that even at the time of estrum it is

rarely possible to pass a sound much larger than a lead pencil through the cervix, and it is almost impossible to dilate it to any material degree without cutting or tearing, excepting at the time of estrum or parturition. The mucosa of the cervix is thrown into deep longitudinal folds, admitting of great dilation at the time of parturition, and under inflammatory conditions may arrange themselves in ridges, or in a fluted condition complicating entrance into the uterus by even a small sound or probe.

The mucosa is liberally supplied with mucous glands throughout, and it seems as though one might be justified in supposing that this hard, tight, tortuous cervix of the cow so well supplied with apparently germicidal glands, might be the one least vulnerable to infection. This is evidently not the case, or our equine females have up to the present time, so far as we know, escaped the virulent specific type of infection that works so disastrously in the cervix of the cow. When once the infection penetrates past the barrier glands and becomes seated, so to speak, the cervical tissue seems too phlegmatic to readily throw off this deep-seated involvement.

Clinically we recognise two types of cervicitis—acute and chronic. True, these types vary in severity, but where a clinician should positively subdivide is beyond my power to determine or elucidate.

In acute cervicitis we have the cardinal symptoms of inflammation. This is plainly evident in cases that are associated with abortion or retained placenta, particularly those cases which are so acute as to cause the animal pain when the cervix is handled. It is generally known that the cervix of the cow like the human cervix has little feeling, and ordinarily can be handled and grasped with forceps and drawn back with practically no pain, but in the very acute type of cases frequently the cow will either arch her back, draw away, or strain violently with the slightest manipulation of the cervix. These cases might be styled the hemorrhoidal cases, since if the cervix is retracted to view, it will be noticed that it bleeds under pressure of the hands or forceps. Its mucous folds have the appearance of freshly chopped beef, varying in colour from deep red to purple. If a case of this type is seen a week or so after it might be difficult to recognise it as having been originally of this type. This may be so with or without treatment. The acute condition may have subsided so that while there is still more or less tendency to bleed from handling, the sensitiveness may have entirely disappeared and the handling cause no more pain than is usually occasioned. It is evident that some of these cases may recover spontaneously, the parts quite rapidly becoming apparently normal, but many of them not effectively treated be-

come chronic, with more or less induration and occasionally leading to artresia, but more often to a dilation of the cervix, varying from a condition that will admit the two fingers to a dilation that will admit the whole hand. Accompanying chronic cervicitis as a fairly constant symptom is an accumulation in the vagina and cervix of great quantities of clear mucous, such as is observable during the early hours of an estral period, or this may be displaced by a varying quantity of either a catharrhal exudate or a mucopurulent exudate, usually with pronounced evidence of more or less uterine mucosa involvement. This involvement is not infrequently so severe as to thicken the mucous membrane sufficiently to be plainly perceptible to the finger's touch.

Where the discharge is clear and there is no plain evidence of any severe involvememt of the uterine tissue except the endocervix and the animal ovulates regularly, it would be interesting to know whether the dilation of the cervix or the character of the discharge is a more important factor in failure to conceive. To determine this would probably require much evidence, since when such cases are treated successfully there apparently is a simultaneous lessening of the discharge and contraction of the cervix. Some workers are of the opinion that cervicitis is frequently seen in the virgin ; if so, I have rarely been able to diagnose it.

Treatment.

Up to the present I have directed my attention to trying to prevent the plainly acute cases that are associated with the abortion or retained placenta from becoming chronic, by irrigating with hot salt solution daily, beginning twenty-four hours after parturition and swabbing the cervix with Lugol's solution or iodine every two or three days, continuing the treatment as long as the individual case seems to warrant.

In chronic cases that have followed abortion and been neglected, I attempt to correct the trouble where it seems feasible, by swabbing the cervix with iodin or Lugol's solution every three or four days, occasionally packing some cases with gauze or cotton soaked in Lugol's solution and irrigating the uterus where it is evidently involved with Lugol's solution from one-half or two per cent., for a few times at irregular intervals, supplemented by irrigation with hot salt solution and massaging as often as it is practical to see the patient.

As to surgical treatment, I have not attempted any of the classic operations practiced in human surgery, confining my surgical interferences entirely to removing any folds or growths or abnormal conditions that are easily accessible and from their size and arrangement appear to be interfering with a free opening of the minute canal.

It is quite probable that skilled surgery in selected cases would relieve some of the conditions that are now regarded as hopeless, but substantial advancement in cervical surgery will need to be left to those so situated that failures during the experimental period will do the least harm to their professional standing and incidentally to their income.—*American Journal of Veterinary Service.*

DYSENTERY OF LAMBS.

By S. H. GAIGER, F.R.C.V.S.,
Principal, Glasgow Veterinary College.

During the summer of 1918, the writer was consulted by sheep farmers in regard to a disease commonly termed "White Scour" or "Red Scour," which was carrying off large numbers of lambs annually, and an arrangement was made to visit some of the affected areas the following spring, which is the season when the disease occurs. The following notes are based on the preliminary investigations which were then made.

In the spring of 1919 information was received that the disease had broken out amongst the new lambs in as virulent a form as in previous years, and accordingly one of the worst affected areas was visited, and a commencement made with the work of investigating the disease. At the same time a large number of personal enquiries and enquiries by letter were made in order to find out something of the distribution of the malady, the extent of the mortality, and general facts in connection with the occurrence of the disease.

Distribution.—The disease appears to be distributed over certain fairly wide localities in the south of Scotland and the north of England. It is present to a considerable extent in Dumfriesshire and Kirkcudbrightshire, and in Northumberland and Cumberland.

The disease does not seem to have appeared as yet in any part of Scotland north of a line between the Firths of Forth and Clyde.

Occurrence.—On Farm A, containing 1,200 acres of pasture land, the disease accounted for the deaths of 70 lambs in 1914. There was very little loss in 1915, when the present tenant took over the farm, but this tenant bought none of the late tenant's sheep. In 1916 and 1917 only a few lambs died. In 1918 there were 50 deaths, and in 1919 there were 97 deaths. In 1918, on this farm, the disease commenced eight or nine days after lambing began, so the farmer arranged for lambing to commence earlier in 1919. In 1919 the disease appeared in lambs from two days up to two weeks old, though

sometimes in those a little older. No lambs have been known to recover.

This farmer keeps Border Leicester and crossed stock, and, owing to the serious mortality, has contemplated giving up keeping sheep, but proposes to try fewer numbers for 1920. He has been amongst sheep for sixty years, and has never seen this disease before. In his neighbourhood it seems to be a recent disease, and is looked on as such a serious scourge that other sheep breeders are contemplating giving up sheep breeding.

On Farm B the disease was unknown four or five years ago. There were 50 deaths of young lambs in 1917, 80 deaths in 1918, and in 1919, out of a total of 500 lambs, 120 died.

This farmer reports that deaths from dysentery, in all his neighbourhood have been very heavy. His own losses have been so great that he intends to keep only half his stock of breeding ewes in future.

On Farm C there was no sign of this disease before the lambing season of 1919, when 30 lambs died. The disease did not appear before the lambing of the last 50 lambs of that season.

In this case the loss occurred only in one heft carrying seven score ewes, but this was alongside Farm D, which had a heavy loss. The two farms were divided by a good dyke.

On Farm D there is a stock of 1,550 blackface ewes divided into three hirsels of 630, 520, and 400.

Dysentery was never seen before the year 1919 on this farm, and then it appeared in the hirsel of 630, and 140 lambs died. The other two hirsels did not become infected.

On Farm E there is a stock of 30 score ewes. The disease first appeared in 1912. This farmer has no accurate record, but he considers his loss to be between 50 and 100 per annum. Others in this neighbourhood say the disease was present on this farm as early as 1907.

On Farm F the disease has been in existence since 1915, and the loss has been 100 lambs per annum. This farmer's experience is that the lambs die as quickly and not in any less numbers than when the trouble first began ; in other words, the virulence of the disease and the mortality amongst the affected are both undiminished. The deaths cease here about the end of May.

On Farm G the disease made its first appearance about the end of April, 1912. In 1914 and 1915 the disease commenced on April 23.

The losses from dysentery on this farm were accurately recorded, and were as follows :—

1912	.. .. ..	15 lambs.
1913	.. .. ..	20 ,,
1914	.. .. ..	100 ,,
1915	.. .. ..	100 ,,
1916	.. .. ..	80 ,,
1917	.. .. ..	80 ,,
1918	.. .. ..	30 ,,
1919	.. .. ..	25 ,,

This farmer's experience is that the disease is practically always fatal, though there are rare exceptions, and that although the numbers of cases are now on the decline, these numbers include all the lambs which are attacked. His view is that the virulence of the infection does not decrease.

On Farm H the disease began in 1912. For the five years including 1919, the total loss has been 240 lambs, but the loss during the seasons 1918 and 1919 were by far the heaviest.

On Farm I, which has a stock of 27 score ewes, there is no record of when the disease commenced, but in 1917 there was a loss from dysentery of 100 lambs, in 1918 a loss of 120, and in 1919 a loss of 50 lambs.

On Farms J, K, L and *M*, losses to the extent of " a few " occurred both in 1918 and 1919.

A number of other farms in the neighbourhood of some of those mentioned above are known to have had this disease, but it was not found possible to get any information.

The farms of which information is available do not, to the writer's own knowledge, give anything like a true indication of the entire extent to which this disease has taken hold.

While visiting some of the infected districts, a considerable number of enquiries in regard to the disease were made. Information was, at times, almost thrust upon one, as the " lamb disease " was the talk of all the farming community in those districts. The disease is commonly known to farmers in the north of England, and mentioned in the newspapers as the " mysterious affection of lambs." In certain parts of the south of Scotland the trouble is looked upon by the shepherds as a form of louping-ill.

Symptoms.—Dysentery affects lambs up to about a fortnight old. It is seldom that lambs of a few weeks old are affected.

The trouble may be very quickly fatal, and the lamb which was bright and lively one day may be found dead the next.

In most cases the trouble does not terminate so quickly in death, but from the time a lamb is seen to be ill it is only a matter of twenty-four hours or so till death occurs. The symptoms exhibited are dullness, and the lamb not following the ewe. A yellow scour is seen to be present, and the fæces are frequently tinged with blood. If the lamb lives long enough, this changes to a black scour. The lamb quickly develops symptoms of intoxication and prostration.

In very rare instances a lamb has shown symptoms for as long a period as seven days and then died, but this is quite exceptional.

Post-mortem Lesions.—The post-mortem lesions in dysentery, as in all sheep diseases, differ considerably in an animal which has been "found dead" and in one which has been destroyed at the height of the symptoms. Putrefaction in sheep, and especially in cases where the disease is abdominal, comes on with very great rapidity. There are probably several reasons for this. The temperature of a sick sheep is comparatively high, say 106° F., and this temperature does not fall as rapidly as in other species of animals because the woolly coat is a bad conductor of heat. The conditions of moisture, combined with a suitable temperature, are very favourable for the growth of putrefactive bacteria invading the body tissues from the bowel after death. Another reason for early putrefaction in sheep is that the wall of the sheep's bowel seems to be, comparatively speaking, very readily permeable by the common intestinal bacteria. While working upon another sheep disease abroad, the writer found that these common intestinal bacteria can penetrate the bowel-wall even *before* death. Sick lambs which would not be expected to die for a few hours, were found to have these bacteria in the peritoneal fluid, though not in the organs. This shows that sick sheep actually commence to putrefy before death takes place. Not many hours after death, these bacteria are found to have penetrated to the remote regions of the body.

I have dwelt upon this point in order to emphasise the danger there is from the very outset of falling into an error in the investigation of sheep diseases. From the outset the writer decided to have nothing to do with dysentery lambs "found dead" beyond making a simple post-mortem examination.

Fortunately, an opportunity arose to carry out preliminary pathological and bacteriological work on three cases found alive, two of these being very typical cases. Each case was a pronounced one, but none of them was in extremis. Lamb 1 differed from lambs 2 and 3 in that it was one of the more chronic cases, and was killed for the above-mentioned work on the eighth day of disease. Lambs 2 and 3 were killed for examination on the first day of disease.

The peritoneal fluid was slightly cloudy in lamb 3, but clear in the other two. In all there was severe inflammation of the large bowel, and scattered here and there were small circular necrotic areas of the size of a lentil. These areas were bright yellow in the centre, and had a bright red circumference, due to inflammatory phenomena limiting the areas of necrosis. These lesions could be easily seen through the wall of the bowel before the bowel was opened, but they were more distinct after slitting open the bowel and washing the surface gently. Some of these areas seemed on the point of breaking down into a perforation of the bowel, though actual perforation was not seen.

The small intestines were almost normal. In places they showed a certain amount of injection of the blood-vessels. In no part of them were the necrotic areas found. The stomachs were normal in each compartment. The lymphatic glands in the abdomen were enlarged and œdematous. The liver was enlarged and softened and lighter in colour than normal. The kidneys were inflamed and slightly enlarged in lambs 2 and 3, and distinctly enlarged in lamb 1. The spleen in lamb 1 was very much enlarged. The heart, lungs and chest cavity in each case were normal.

The probable causal bacterium.—From all three lambs cultures were made upon a variety of media, and from all the organs and tissues of the body. The result was that from all three lambs the same bacterium was obtained in pure culture.

This bacterium was present in the liver, the glands of the abdomen, the kidneys, and the urine.

The blood, spleen, lungs, peritoneal fluid, and the pleural fluid were sterile in each case in so far as cultural methods showed.

The organism grown was a short bacillus, and at first it was thought that it was of the colon type, a type of bacterium which is the cause of certain scours in calves. Further study showed that the organism is unlike any hitherto described variety of the Bacillus coli.

On Agar slopes the bacillus shows colonies indistinguishable by the naked eye from colonies of typical Bacillus coli.

On bouillon there is turbidity which quickly settles to the bottom of the tube. There is a distinct surface scum.

Gelatine is not liquified.

Fermentation of the following sugars took place : Glucose, Lactose, Saccharose, Mannite, and Dulcite.

No fermentation occurred in the following : Adonite, Inosite, and Inulin.

In Litmus-milk acid and clot were formed.

It is negative to the Voges and Proskauer reaction.

The bacillus is non-motile.

In its fermentation reaction, therefore, this bacillus falls under Group 3 in MacConkey's classification of the varieties of the Bacillus coli, of which B. Friedlander is the Group type.

Pathogenicity.—Young rabbits of a few weeks old die in from 24 to 48 hours after subcutaneous inoculation of 1 cc. bouillon culture.

Rabbits over three months old are less susceptible. Some die in about 48 hours, but most are made ill and recover after a few days. These always develop a local lesion about the size of a two-shilling piece which bursts, discharges, and heals up in two or three weeks.

Rabbits in which the disease proves fatal develop a severe scour. On post-mortem examination there is seen severe inflammation of the intestines and lesions similar to the necrotic lesions seen in natural cases in lambs. The bacillus is recoverable in every case from the liver.

In rabbits a fatal termination is more likely to ensue after intraperitoneal inoculation, but adults are not necessarily killed by this method.

Young guinea-pigs are less susceptible to subcutaneous inoculation, and the animal shows no ill-effects beyond the local lesion which, as in the rabbits, bursts, discharges and heals. On older guinea-pigs the result is the same.

A pigeon inoculated intramuscularly with 2 cc. bouillon culture became seriously ill and died on the fifth day from the inoculation. On post-mortem examination there was seen a certain amount of muscle necrosis and a very severe enteritis.

A horse received an inoculation subcutaneously of 2 cc. bouillon culture, and a local abscess resulted, which healed up within a fortnight.

It was not found possible in the spring of 1919 to do any experimental inoculations on lambs to test the pathogenicity of the bacillus. This, of course, must be done at the earliest opportunity, as being one of the crucial tests as to whether this is the causal organism or not. Later in the year a hog was fed with a very large dose of bouillon culture (200 cc.), but it had no visible effect. Subcutaneous inoculation of a hog produced considerable persistent local inflammation, but no abscess.

Filtrate (toxin) from a three-day-old bouillon culture was inoculated into a rabbit, guinea-pig, and horse, and did not produce any abscess, but merely a quickly-disappearing local swelling.

After culture for five months in the laboratory without passage through rabbits, the bacillus was found to have lost some of its virulence for rabbits. It would not kill young rabbits on subcutaneous

inoculation, but it was found that its virulence could be restored by intraperitoneal inoculation, up to the point where subcutaneous inoculation proved fatal for young rabbits.

Is this Bacillus the Cause of the Disease?—From the small amount of work done, one cannot say with certainty that this bacillus is the causal organism of dysentery in lambs. It would appear to be highly probable that it is so, however.

The bacillus was present in all three cases. It was present before death in regions of the body, where it is most unlikely to have been a harmless invader, and it was there a number of hours before one would have expected death to occur. It is an organism which has marked pathogenic properties on inoculation into animals, and in young rabbits sets up a fatal enteritis with lesions in the bowel resembling those seen in lambs.

Sections through the ulcers in the bowel in lambs and rabbits show that the wall of the bowel, as far as its peritoneal surface, is invaded by a short bacillus described above.

The rate of spread and the nature of the disease in lambs are not such as would lead one to suspect the cause to be an ultra-visible virus.

It is therefore considered probable that this bacillus, found associated with the disease, may be the actual existing cause, but further experimental work and tests must be done to confirm this.

There are difficulties in the way of an extended investigation into the disease, because it occurs during only about three weeks in the year, or at most a month, in any one flock. This seasonal character is doubtless due to the disease attacking only lambs up to about three weeks old, and then the disease disappears because the lambs get beyond the susceptible age. Last year when I found it possible to visit the disease areas, the disease had been in progress nearly two weeks, so that there was only about one week remaining in which to do any investigation.

Prevention.—Owing to the serious state of affairs in the affected areas, it was decided to try and prepare an effective antiserum on a small scale for experimental use on lambs in the spring of 1920, as soon as they are born.

This is being done, though it is by no means certain that the serum will be of sufficient potency to be effective. The one horse used for this purpose was started on September 1, 1919, but considerable trouble was caused for a time by the local lesions when inoculations with live cultures were given, and in consequence the work was unavoidably delayed.

Lack of assistance and funds prevented me experimenting in making an antiserum on more than one horse.

Lamb dysentery is essentially a disease for which it is highly probable that an effective antiserum could be prepared, which might be the means of saving a great number of lambs' lives.

The serum would have to be inoculated as soon after birth as possible. It would have to be done on batches of lambs during lambing time, and there should be no difficulty in the shepherd doing the inoculations himself. It would hardly be worth a veterinary practitioner's while to pay frequent visits for this purpose. There would be no danger to the lambs from serum inoculation, and a single dose inoculated soon after birth ought to give immunity to the lamb lasting more than a fortnight, by which time the lamb would be beyond the age at which it is susceptible to the disease.

The cost of inoculating all the lambs on an infected farm annually would be infinitesimal when compared with the total sum lost annually by the deaths of lambs from dysentery on that farm.—*The Scottish Journal of Agriculture.*

THE OPEN FORMS OF TUBERCULOSIS IN DOMESTIC CARNIVORA.

By G. PETIT.

After mentioning the works of Professor Cadiot on external tuberculosis of the dog and cat, and his views on establishing the identity of human tuberculosis with that of domestic carnivora, the author surveys the four-fold method of becillary spread and pollution of the family ***milieu*** by open tuberculosis of carnivora and man.

1. Open tuberculosis of the pelvis of the kidney, tuberculosus pyelo-nephritis; quite rare lesions which permanently throw out bacilli in the urine.
2. Ulcerous tuberculosis of the intestine: intestinal ulcerations, enteritis and tuberculous diarrhœa resulting in the pollution of the environment by excreta.
3. Cavernous tuberculosis of the lungs. Carnivora do not spit, but by their cough they throw out mucus charged with bacilli, which gain access to the lungs of people in contact with them.
4. Ulcerous tuberculosis of the skin. Frequent lesions in the dog and cat, and in which the pus swarms with bacilli, which is a great danger to children who play with these animals.

Conclusions.—Human tuberculosis is easily transmitted to the dog and cat, and it must be admitted and feared that tuberculosis of these animals is transmissible to man. We must not exaggerate or

disregard the real danger resulting from open or ulcerous forms of tuberculosis in the domestic carnivora. It is proper to consider as suspect dogs and cats whose general condition is bad, that are thin, cough, have diarrhœa, or are subjects of ulcers of the face or neck that refuse to heal.

Rev. Gén. de Méd. Vét.

POTASSIUM IODIDE IN MALNUTRITION OF PIGS.

By J. J. FREY,

Veterinary Pathologist, Division of Animal Industry, Sacramento, Calif.

EARLY in the fall, the owner of a herd of hogs in the foothill district of the Sacramento Valley, reported a disease among his suckling pigs, which he described as follows :—

When about three days old, scalded-like areas appeared around the mouth, on face and ears. These did not penetrate the skin, nor resemble the lesions of necrobacillosis. There was a distinctly noticeable enlargement in region of the thyroids. While retaining a good appetite, they became emaciated, the skin developed a scurvy-like surface, was wrinkled all over the body, and was hard to the touch. These symptoms progressed with increasing weakness, until the pigs finally lay on their sides, unable to rise, and died in the course of a couple of days more.

About fifty pigs all belonging to six sows, that had farrowed about the same time, were affected without an exception. The course of the disease appeared to be from two to six weeks. The mothers remained healthy, as did all the other hogs of various ages on the place. There was no history of cholera in the vicinity. The affected pigs retained clear eyes ; there was no reddish discoloration of the skin, nor were the typical internal lesions of cholera present.

The condition suggested some form of malnutrition, and called to mind the article by E. B. Hart and H. Steenbock, of Wisconsin Laboratory of Agricultural Chemistry, on Thyroid Hyperplasia and Relation of Iodine to the Hairless Pig Malady in the *Journal of Biological Chemistry*, February, 1919, and a succeeding article in the Journal of the A.V.M.A. by Howard Welsh, of Bozeman, Montana, in which he stated that iodine is a specific prevention for hairless pigs and goitre in lambs and calves.

Accordingly it was advised that about two grams of potassium iodide be dissolved in water and mixed with mash and fed to the sows and litters daily.

The owner reported that 21 head were lost until time of treatment,

when almost immediate improvement was noticed and continued until the situation was entirely cleared.

This report is submitted as a corroboration of the articles above mentioned.—*Journal of the American Veterinary Medical Association.*

Parliamentary.

MILK AND DAIRIES BILL.

MEMORANDUM.

The Bill is designed to secure amendments in the machinery provided by the Milk and Dairies (Consolidation) Act of 1915—the operation of which is at present suspended—for securing improvements in the quality of the milk supply.

The main provisions of the Bill are as follows :—

(i) Provision for the licensing of dairymen and dairies (clause 1).

(ii) An extension of the provisions of the Principal Act in regard to the classification of milk (clause 2).

(iii) Provision for the undertaking by sanitary authorities, with the approval of the Minister of Health, of the supply and distribution of milk, or the cleansing, storage, etc. of milk for sale by dealers (clause 6).

(iv) The constitution of Milk and Dairies Committees by the local authorities who will administer the Act (clause 7).

ARRANGEMENT OF CLAUSES.

Clause.

1. Licensing of dairymen and dairies.
2. Amendment of section 1 (1) (*l*) of principal Act.
3. Additional powers.
4. Amendment of section 3 of the principal Act.
5. Amendment of section 10 of the principal Act.
6. Power of sanitary authorities with respect to supply and distribution of milk.
7. Milk and dairies committees.
8. Provision as to London.
9. Minor amendments.
10. Short title and printing.

SCHEDULE.

A BILL TO AMEND THE MILK AND DAIRIES (CONSOLIDATED) ACT, 1915.

Be it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same as follows :—

1. Milk and dairies orders made under section one of the Milk and Dairies (Consolidation) Act, 1915 (in this Act referred to as the principal Act), may provide for the licensing of dairymen and of dairies, and accordingly that section shall be amended as follows :—

The following paragraphs shall be substituted for paragraphs (*a*) and (*b*) of subsection (1) :—

(*a*) for the licensing of dairymen by local authorities, and for prohibiting the carrying on of the trade of dairyman by any unlicensed person, or by a licensed person otherwise than in accordance with the conditions (if any) attached to the licence ;

" (*b*) for the licensing of dairies by local authorities, and for prohibiting the use as a dairy of premises which are not licensed, or of premises which are licensed otherwise than in accordance with the conditions (if any) attached to the licence."

The following subsection shall be added after subsection (2) :—

" (2A) A Milk and Dairies Order with respect to the licensing of dairymen or dairies may prescribe the circumstances in and the conditions under or subject to which licences may be issued, renewed, suspended, or revoked, and the fees to be paid on the issue and renewal thereof, and shall confer a right of appeal to a court of summary jurisdiction on any person aggrieved by a decision of a local authority refusing to grant or renew, suspending or revoking a licence."

2. For paragraph (*l*) of subsection (1) of section one of the principal Act the following paragraph shall be substituted :—

(*l*) for authorising the use in connection with the sale of milk of the designation " certified milk," and for authorising or requiring the use in such connection of such other designation or declaration as may be prescribed by the order, for prescribing the conditions subject to which milk may or is to be sold under any such designation or with any such declaration, and for prohibiting the use of designations or declarations so authorised in connection with the sale of milk in respect of which the prescribed conditions are not complied with,

and for applying, with the necessary modifications, to designations and declarations so authorised the provisions of the Merchandise Marks Act, 1887, with respect to trade descriptions.

3.—(1) The following paragraph shall be inserted after paragraph (*b*) of subsection (1) of section one of the principal Act :—

" (*bb*) for requiring any dairyman to keep such records and to supply to the Minister of Health or to any local authority such information and particulars as to the production, purchase, treatment, storage, cleansing, and sale of milk and milk products by such dairyman as may be prescribed by the order."

(2) The following paragraph shall be inserted after paragraph (*k*) of subsection (1) of section one of the principal Act :—

" (*kk*) for requiring milk to be treated by such process or processes as may be prescribed by the order."

(3) The following shall be added at the end of subsection (2) of the same section :—

" and may authorise or require any such person to carry out such tests for tuberculosis or other diseases as may be prescribed by the order."

4. The following subsection shall be substituted for subsection (4) of section three of the principal Act :—

" (4) The Minister of Health may by order direct that the sanitary authority for any area within a county shall exercise and perform in the area the powers and duties of the county council under this and the next succeeding section ; and where such order has been made with respect to any sanitary authority this and the next succeeding section shall apply as if the area were a county borough and the sanitary authority were the council thereof."

5. The following subsection shall be added at the end of section ten of the principal Act :—

" (3) It shall, if the Minister of Health so requires, be a condition of the appointment or employment of a veterinary inspector that he shall not engage in private practice, and any such requirement may extend either generally to all cases or to any particular cases or classes of cases."

6. The following section shall be substituted for section twelve of the principal Act :—

" (1) Subject to the approval of the Minister of Health and to such conditions as he may impose a sanitary authority may make

arrangements for securing the better supply and distribution of milk within their area and for that purpose may do all or any of the following things, that is to say :—

(*a*) purchase milk and sell such milk within their area ;

(*b*) make milk products from surplus milk purchased by them and sell such products ;

(*c*) distribute milk within their area and store, cool, clean, and otherwise treat milk intended for sale in their area ;

(*d*) exercise any of the powers aforesaid through the agency of any organisation approved by them ;

(*e*) do all such acts or things as may be necessary or expedient for the purposes aforesaid or incidental thereto, including the acquisition by agreement of existing undertakings, but not including the production of milk ;

(*f*) with the consent of any other sanitary authority exercise any of the powers aforesaid for the purpose of the sale of milk in the area of such other authority."

" (2) Every sanitary authority proposing to exercise powers under this section shall submit for the approval of the Minister of Health a scheme setting out the arrangements proposed to be made, and shall supply the Minister with such estimates and other particulars as he may require ; and the Minister may in his discretion approve or disapprove the scheme, and where he approves such scheme he may do so with such limitations, modifications or conditions as he thinks fit, but the Minister shall not approve a scheme unless satisfied that the scheme makes provision for securing that the charges to be made by the sanitary authority for milk and milk products supplied by them shall be such as may reasonably be expected to cover all costs incurred by the sanitary authority in respect of the undertaking, including charges in respect of loans and expenses of administration, and for securing that the accounts of the undertaking shall be kept separate from all other accounts of the authority, and shall be in such form and certified in such manner as the Ministry may require."

" (3) Two or more sanitary authorities under this section may combine for the purpose of establishing a common undertaking for the supply and distribution of milk in their several areas, or any parts thereof, and any scheme submitted by them under subsection (2) of this section shall contain the necessary provisions for the purpose, and those provisions shall have effect as if contained in a Provisional Order made under section two hundred and seventy-nine of the Public Health Act, 1875."

7. The following subsection shall be substituted for subsection (2) of section fifteen of the principal Act :—

" (2) Every county council shall, and any other local authority may, and if required by the Minister of Health shall, establish a committee (to be called the milk and dairies committee) constituted in accordance with a scheme made by the council and approved by the Minister of Health after consultation with the Minister of Agriculture and Fisheries.

" The scheme shall provide that one-third of the members of the committee shall be members of or elected by any agricultural committee appointed by a local authority having jurisdiction in the area or otherwise representative of the interests of agriculture, and may provide for the appointment as members of the committee of persons who are not members of the council.

" All matters relating to the exercise of the powers of the council under this Act (except the power of raising a rate or borrowing money) shall stand referred to the committee, and the council may also delegate to the committee, with or without restrictions or conditions as they think fit, any of their powers under this Act except the power of raising a rate or of borrowing money.

" Notwithstanding anything in section seventy-one of the Housing, Town Planning, etc. Act, 1909, or section seven of the Ministry of Agriculture and Fisheries Act, 1919, it shall not be necessary to refer to any committee constituted under either of these provisions any matter relating to the administration of this Act."

8. (1)—For subsections (3) and (4) of section twenty of the principal Act the following subsections shall be substituted :—

" (3) A milk and dairies order affecting London shall provide for the exercise and performance by sanitary authorities in London of all powers and duties under the Order which relate to the retail sale and distribution of milk and to dairies used for the purpose of such sale and distribution.

" (4) As from the date when a Milk and Dairies Order providing for the licensing of dairies and dairymen in London comes into force the following enactments shall be repealed, that is to say :—

" (*a*) Section twenty of the Public Health (London) Act, 1981, so far as it related to dairymen, cowhouses, and places for keeping cows.

" (*b*) Subsection (4) of section six of the London Government Act, 1899, so far as it relates to dairies and milk.

" (*c*) Section five of the London County Council (General Powers) Act, 1908."

(2) At the end of the same section the following subsection shall be inserted :—

" (7) The powers conferred by this Act on sanitary authorities with respect to the supply and distribution of milk shall in London be exercisable by the London County Council instead of by the sanitary authority :

" Provided that where the county council have not undertaken the retail supply and distribution of milk in any area in the county it shall be lawful for the sanitary authority for that area to undertake such supply and distribution and matters incidental thereto (including the cooling, cleansing and other treatment of such milk), and the Minister of Health in approving of any scheme submitted for the purpose by the sanitary authority may require that if at any subsequent time the county council undertakes the supply and distribution of milk within the area, the undertaking of the sanitary authority shall, if so directed by the Minister, be transferred to the county council on such terms as may be agreed on or, in default of agreement, as may be determined by the Minister."

9. The principal Act shall have effect subject to the minor amendments thereof set forth in the Schedule to this Act.

10.—(1) This Act may be cited as the Milk and Dairies Act, 1920, and the principal Act and this Act may be cited together as the Milk and Dairies Acts, 1915 and 1920.

(2) Where any enactment or words is or are directed by this Act to be substituted in the principal Act for any other enactment or words, or to be added to, or omitted from, the principal Act, then all copies of the principal Act printed after such direction takes effect shall be printed with the said enactment or words added to the said Act or omitted therefrom, or printed therein, in lieu of any enactment or words for which the same is or are substituted, according as such direction requires, and with the sections and subsections numbered in accordance with such direction ; and the said Act shall be construed as if it had been enacted with such addition, omission, or substitution.

SCHEDULE.

MINOR AMENDMENTS OF PRINCIPAL ACT.

In the proviso to subsection (5) of section eighteen of the principal Act, " a sanitary authority " shall be substituted for " the council of a non-county borough," " the area of the authority," shall be substituted for " the borough," " such area " shall be substituted for " such bor-

ough," and " sanitary authority " shall be substituted for " council thereof."

In the definition of " dairy " in subsection (1) of section nineteen of the principal Act, " kept, used, or treated " shall be substituted for " kept or used," and the words from " a shop from " to " the shop or " shall be omitted.

" Minister of Health " shall be substituted for " Local Government Board," and " Minister of Agriculture and Fisheries " for " Board of Agriculture and Fisheries," wherever those expressions occur in the principal Act ; and where, in consequence of such substitution, it is necessary to substitute words in the singular for words in the plural, such substituion shall be made.

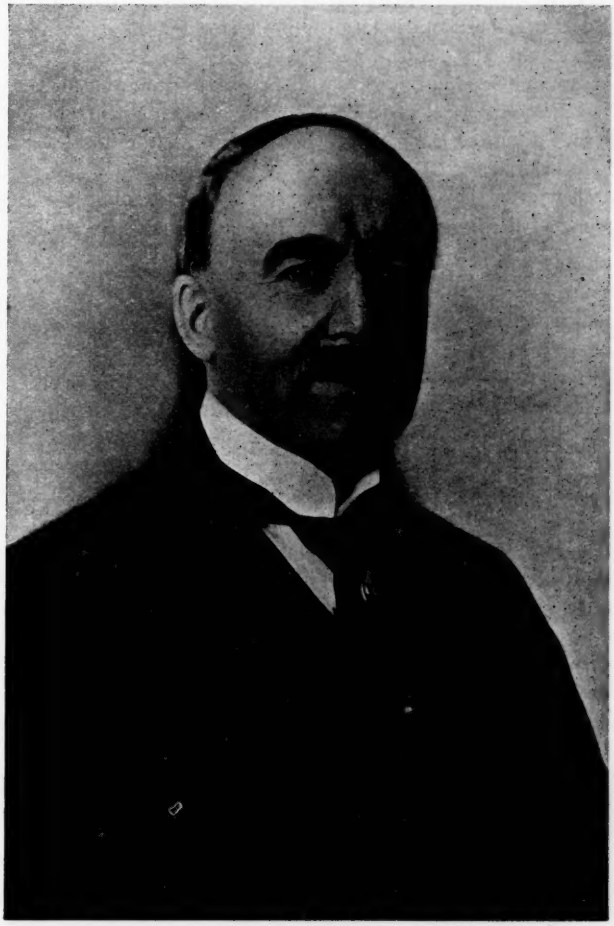
Obituary.

THE LATE DR. JOSEPH HUGHES, M.R.C.V.S.

A GRADUATE of the Glasgow College who " made good " in America, and whose memory will not readily be forgotten as one of those who materially helped to establish veterinary teaching on a sound basis at a time when it was at a somewhat low ebb, has recently died in Chicago. Qualifying as M.R.C.V.S. in 1880, Joseph Hughes held a municipal appointment in Dublin for two years and then crossed the Atlantic to settle in Chicago, in 1882.

In 1883, in conjunction with two American veterinarians, he founded the Chicago Veterinary College, himself acting as secretary. As a member of the teaching staff, he undertook the lectureship in several subjects, specialising particularly in the practical side, especially certain surgical operations, of which he made a speciality, and the diagnosis of lameness, in which he had few equals.

A regular contributor to the Proceedings of the American Veterinary Medical Association, and a regular attendant at its meetings, his opinion in all matters relating to the progress of the profession was always listened to with respect. By his death the profession in America loses an earnest worker, and the Royal College of Veterinary Surgeons loses one of its sons of whose name it is proud. Over 2,000 graduates have, in the Chicago College, owed their allegiance, at one time or other, to his teaching, and the prosperity of this Institution has been largely due to his energy and work.



THE LATE DR. JOSEPH HUGHES, M.R.C.V.S.,
Founder of the Chicago Veterinary College, U.S.A.

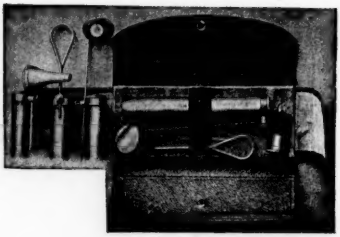
New Instruments and Appliances.

THE AURORASCOPE.

THIS very efficient little instrument is one of the most useful which has ever been put before the profession for the examination of the ear, throat, vagina, or, indeed, any of the semi-closed cavities of the body; and it is also very useful for the examination of the eye.

It consists of an electrical torch with a side attachment for the fixation of a lens or a mirror on the one side and an aural speculum on the other.

With it even the veriest amateur can readily examine the depths of the ear of the horse, dog or the cat without the slightest objection



on the part of the animal; and the vagina can be illuminated to show the slightest suspicion of venereal growth.

In the mouth the mirror can be used in such a way that the back of the throat and the reverse sides of the teeth can be fully illuminated and examined.

The inventor, Dr. Dutch, M.D., is a throat specialist well known in London, and the manufacture of the instrument has been placed with the Aurorascope Company, Fulwood House, High Holborn, London, W.C. The whole is fitted in a neat case which is sufficiently handy and portable to go in the coat pocket.

Personal.

OUR distinguished Belgian colleague, Professor Lienaux, has recently been presented with the high decoration of Officer of the Order of Leopold. He has also been elected, together with an equally distinguished colleague, Professor Hendrikx, as a Member of the Royal Academy of Medicine of Belgium.

Colonel C. F. Morse, Director of the Army Veterinary Corps of the United States, has been awarded the Distinguished Service Medal for exceptionally meritorious and distinguished service during the recent war. The Surgeon General, in recommending this award, states :—

> " This officer was largely instrumental in building up a veterinary service during the war from practically nothing to 2,180 officers and 20,000 enlisted men and upon him devolved the care and treatment of the sick and wounded arising among 465,000 animals. Aside from the obligations to be met in home territory he was responsible for the organisation and dispatch overseas of all veterinary personnel and material required there. Believing that suitable recognition should be accorded the officer in home territory who not only made the overseas achievements possible, but also successfully overcame a task of great magnitude here, and as final evidence of appreciation of the splendid services rendered by the veterinary profession of America during the World War, I recommend that this paper be given earnest and favourable consideration."

At the re-opening ceremony of the University of Strasbourg, the veterinary profession was represented by Professor Vallée, the Director of the Alfort (Paris) School.

In Denmark the total number of veterinary practitioners is 779, whilst for Norway there are only 243.

Dr. Addison, the Minister of Health, has appointed the following Committee in connection with the slaughter of animals and the distribution of food for human consumption in England and Wales :— Sir H. C. Monro, K.C.B. ; Mr. W. G. R. Boys, O.B.E.; Mr. R. B. Cross, O.B.E.; Mr. J. Edwards, Dr.W. J. Howarth, C.B.E., M.D.; Mr. A. W. J. MacFadden, C.B., M.B.; Mr. T. Masheter, J.P.; Mr. A. W. Munro, C.B.; Mr. T. Parker, F.R.C.V.S.; Mr. R. J. Robinson, Mr. P. Taylor, " To be a Committee to consider and report on the legislative and administrative measures necessary to secure adequate protection for the health of the people in connection with the slaughter of animals and distribution of meat for human consumption in England and Wales." It will be noted that the Veterinary Representative is present in the name of Mr. T. Parker, F.R.C.V.S., the Veterinary Inspector to the Borough of Newcastle-on-Tyne.

We regret to note that, owing to ill-health, Mr. Wallis Hoare, F.R.C.V.S., has been compelled to resign the Editorship of our con-

temporary, the *Veterinary News*. His place is being taken by Mr. Henry Gray, M.R.C.V.S., to whom we extend the hand of welcome as an able colleague, one who has the welfare of the profession at heart, and who will undoubtedly speak his mind on current events connected with veterinary affairs, political and scientific.

Old students of the Royal Veterinary College, London, will wish their old teacher Professor Shore, M.R.C.S., L.R.C.P., F.R.C.V.S., a well-earned rest on his retirement from the chair of anatomy after 43 years of active teaching. All will wish him well, and a great number will look back with gratitude to acts of personal kindness extended to them both inside and outside the College gates. Of friends he has made many and enemies none, and his readiness to help under all circumstances was proverbial.

The College, too, is losing Professor Larnder, D.Sc., who has occupied the Chair of Chemistry for 17 years, and he, too, will take away with him the good wishes of many students. His work on Toxicology and the book which he has written on this subject have made his name well known to the members of the profession in England, many of whom will still like to avail themselves of his skill and experience.

PUBLISHER'S NOTICE.

Owing to the recent further increase in the cost of printing and paper, we are reluctantly compelled to advance the price of the VETERINARY JOURNAL *from* 1s. 6d. *to* 2s. *per copy. The Annual Subscription will be* 21s., *post free, instead of* 18s., *and the annual combined subscription with the* VETERINARY NEWS *will be* 32s., *post free. These revised rates to take effect as from July* 1, 1920.

No increased charge will be made for subscriptions already *paid to the end of the current year.*

NOTICES.

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Letters for the JOURNAL, literary contributions, reports, notices, books for review, exchanges, new instruments or materials, and all matter for publication (except advertisements) should be addressed to the Editor.

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Illustrations for reproduction should be in good black or dark brown ink on white paper or card.

Advertisements and all business matters relating to the JOURNAL should be addressed to the publishers, Messrs. Baillière, Tindall and Cox.

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